

## **ABSTRACT OF THE DISCLOSURE**

Methods and apparatuses for performing arithmetic encoding and/or decoding are disclosed. In one embodiment, an arithmetic decoder comprises a sequencer to generate a context identifier for an event of an event sequence, a probability estimator to determine a value for a LPS and a probability estimate for the LPS, and a decoding engine that includes a range register to assign a value to a range for the LPS. The value is based on the probability estimate, a value stored in the range register and the context identifier to a range for the LPS if the context identifier is not equal to an index and the value is not based on the value stored in range register if the context identifier is equal to the index. The decoding engine further determines a value of a binary event based on the value of the range for the LPS and bits from an information sequence.